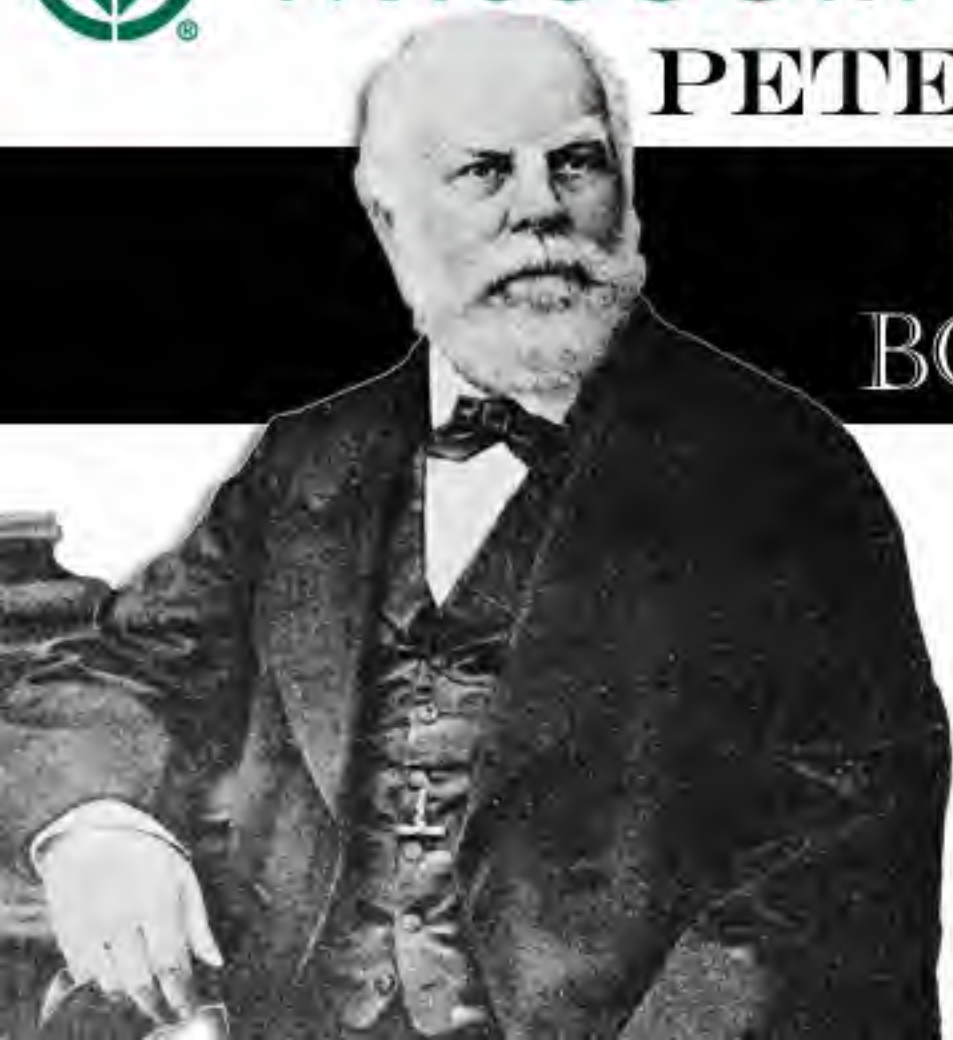


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15-17

L. Torrey

116

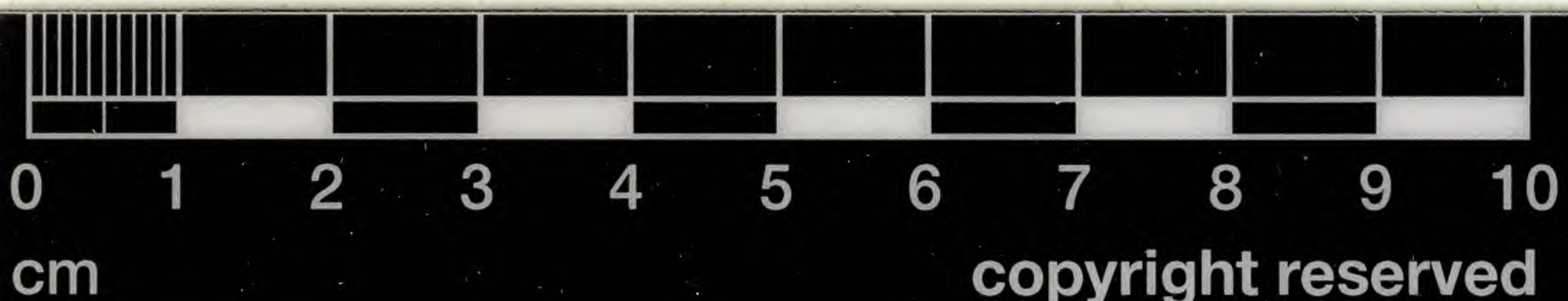
TRANS. OF THE ACAD. OF SCIENCE.

IV. *Direction of Winds and number of Thunderstorms in '61 & '62.*

1861.											Thunder- storms.
	E.	N.	N.E.	S.W.	N.W.	S.	N.W.	S.E.	W.	S.E.	
January.....	11	3	12	22	38	18	28	61	S.E.	.....	0
February....	4	2	2	35	24	19	41	60	S.E.	.....	2
March.....	12	11	10	23	30	19	42	40	W. & S.E.	.....	3
April.....	16	10	9	26	21	35	34	26	S. & W.	.....	2
May.....	26	10	23	21	8	13	49	35	W. & S.E.	.....	5
June.....	12	21	22	20	25	26	8	41	S.E.	.....	7
July.....	3	31	14	21	26	46	15	29	S.	.....	3
August.....	18	24	58	17	11	18	3	37	N.E.	.....	5
September...	6	14	18	23	30	13	21	52	S.E. & N.W.	.....	3
October.....	12	9	5	21	30	33	30	46	S.E. & S.	.....	1
November....	7	15	8	22	27	20	36	44	S.E. & W.	.....	1
December...	9	19	9	25	23	33	17	51	S.E. & S.	.....	0
	136	169	190	279	293	293	324	522	S.E.	.....	32

1862.											Th. st's.
	E.	S.W.	N.	N.E.	W.	S.	N.W.	S.E.	Prevailing Winds.		
Jan.....	19	6	19	23	29	3	38	51	S.E.	.....	1
Feb.....	14	9	18	16	22	7	39	43	S.E. & N.W.	.....	0
March...	9	14	3	15	59	10	34	43	W., S.E. & N.W.	.....	4
April....	12	13	18	31	18	11	34	47	S.E., N.W. & N.E.	.....	6
May.....	12	18	14	38	18	30	14	44	S.E. & N.E.	.....	5
June ....	3	29	24	16	8	36	26	23	S., S.W., N.W., N. & S.E.	.....	6
July.....	5	25	17	7	2	24	31	77	S.E.	.....	10
August..	6	16	16	45	5	22	28	48	S.E. & N.E.	.....	7



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*Additional Remarks on ATMOSPHERIC ELECTRICITY.*

By A. WISLIZENUS, M.D.

The delay in the publication of this volume enables me to add to my observations of atmospheric electricity in 1861, the result of my observations in 1862. The latter observations have been made in the same manner and by means of the same fine glass thread, which, after many thousand torsions, proves as good as ever. I present herewith in tabular form the general result of my observations in 1861 and 1862.

I. *Monthly mean of Positive Atmospheric Electricity in 1861 and 1862, at St. Louis, Mo., based upon daily observations at 6, 9, 12, 3, 6 and 9 o'clock, from morning till night.*

	Jan.	Feb.	Mar.	Ap'l.	May.	Jun.	Jul.	Aug.	Sept.	Oct.	Nov.	Dec.	Mean of Year.
1861*.16.5	12.1	9.8	8.8	7.8	4.0	3.7	3.4	3.0	3.0	7.1	10.0	14.3	8.4
1862...12.1	16.0	9.4	10.6	7.5	3.0	2.2	2.3	3.0	3.0	7.7	12.6	13.9	8.4

\* This table of 1861 differs in some decimals from that published on page 66 and in Diagram No. 1. Having discovered some errors, I calculated all my observations once more, and give now the present as the corrected table.



0 1 2 3 4 5 6 7 8 9 10

cm

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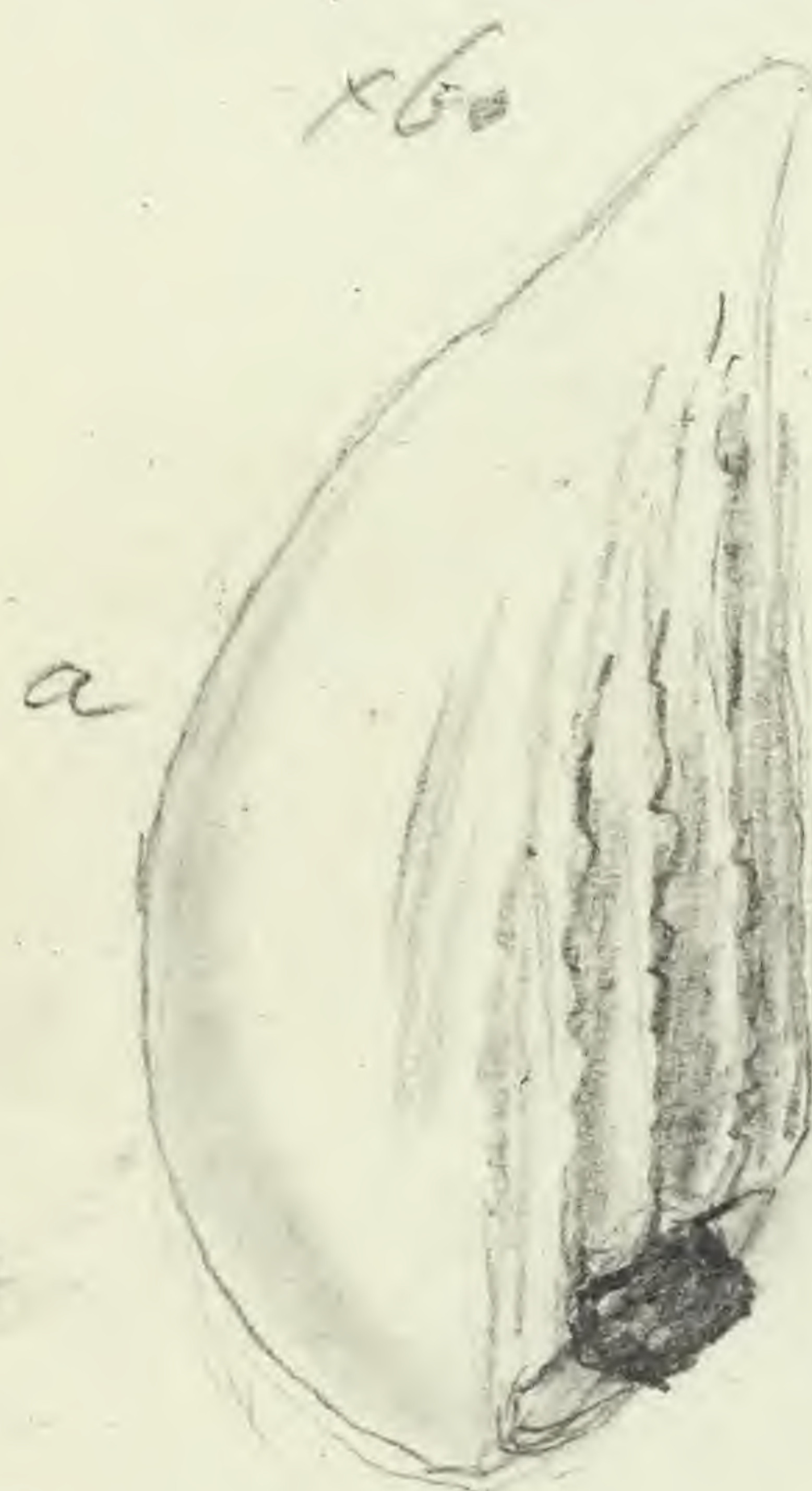
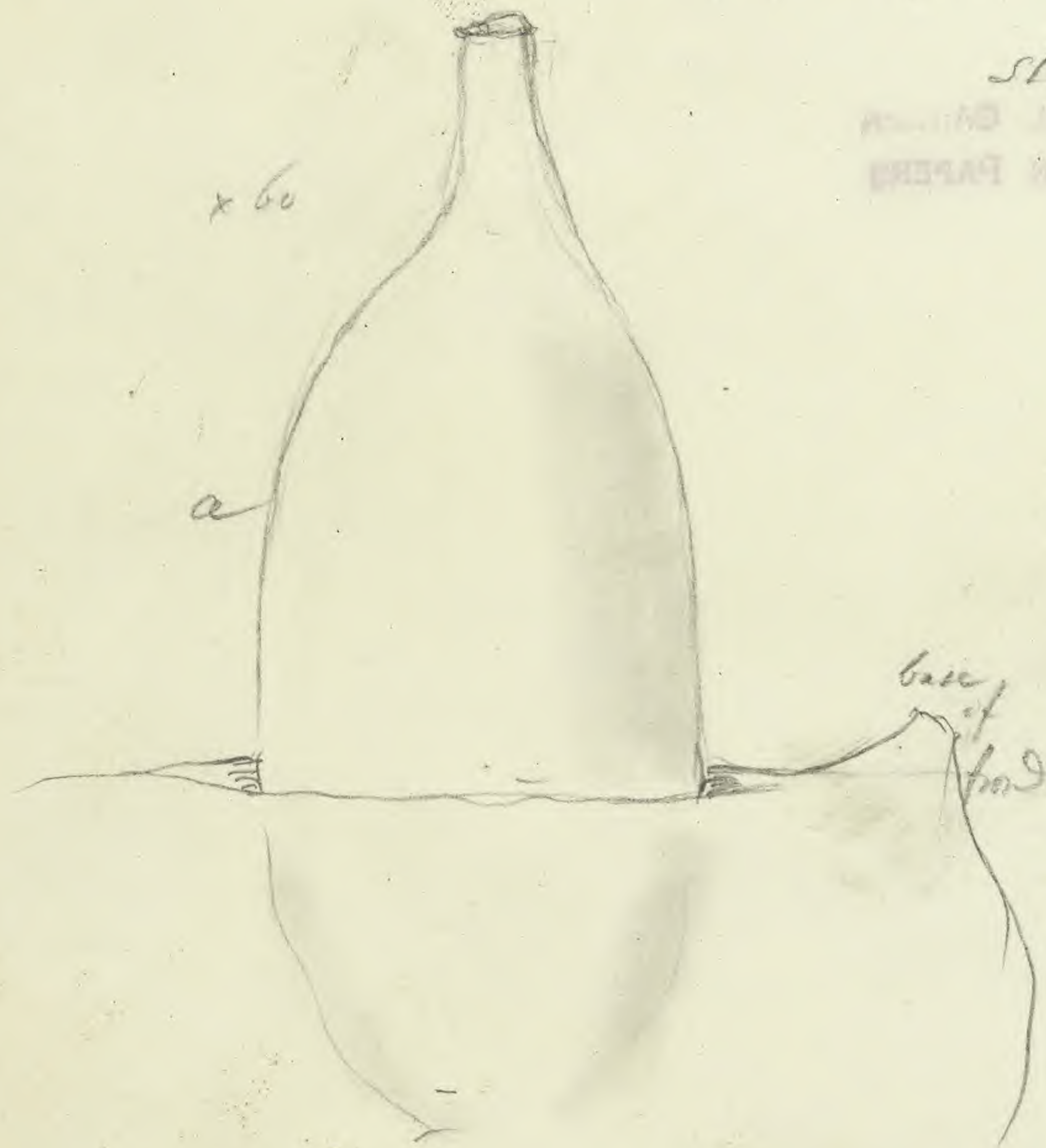


*Lemma Torreyi*

July 8, 1867

State is Cal., Aust.

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testa ? spongy, more so  
towards the side of the  
fruit away from the  
base of the fruit



seed after removal of  
the outer coat, rough



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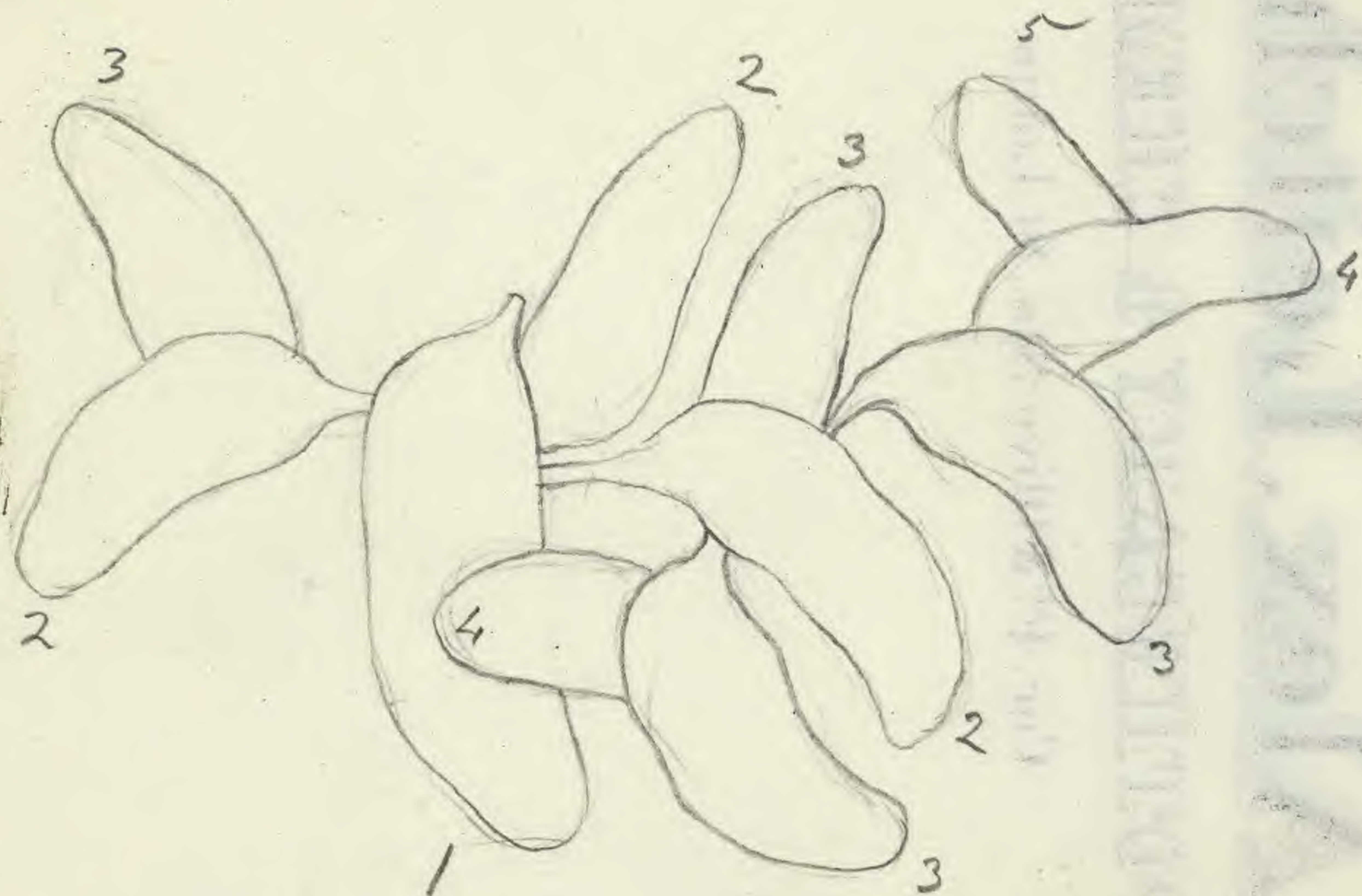
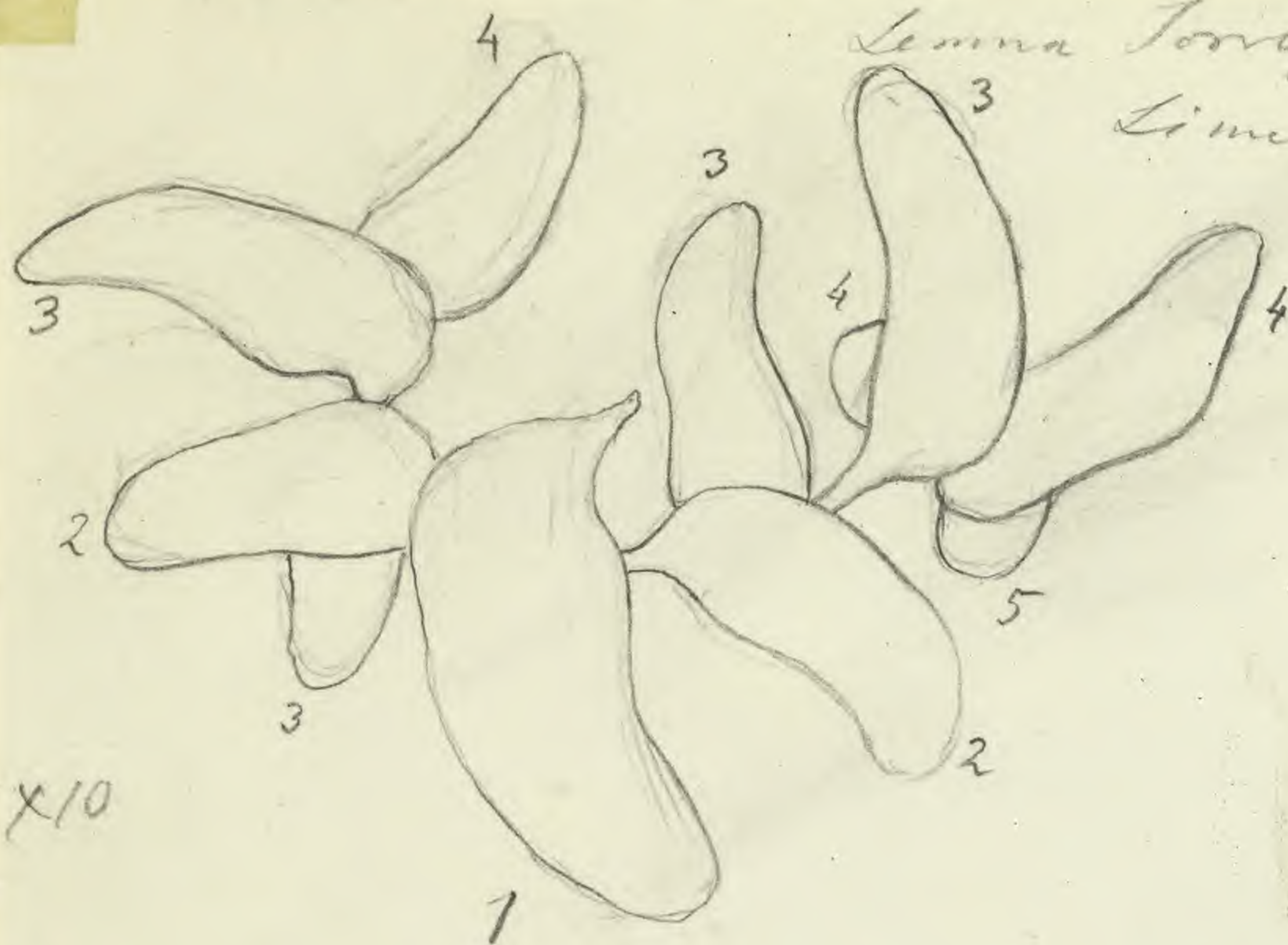
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*Lemna Torreyi*

July 12 1867

Limstone fountain S Carolina. H.W. Ravenel



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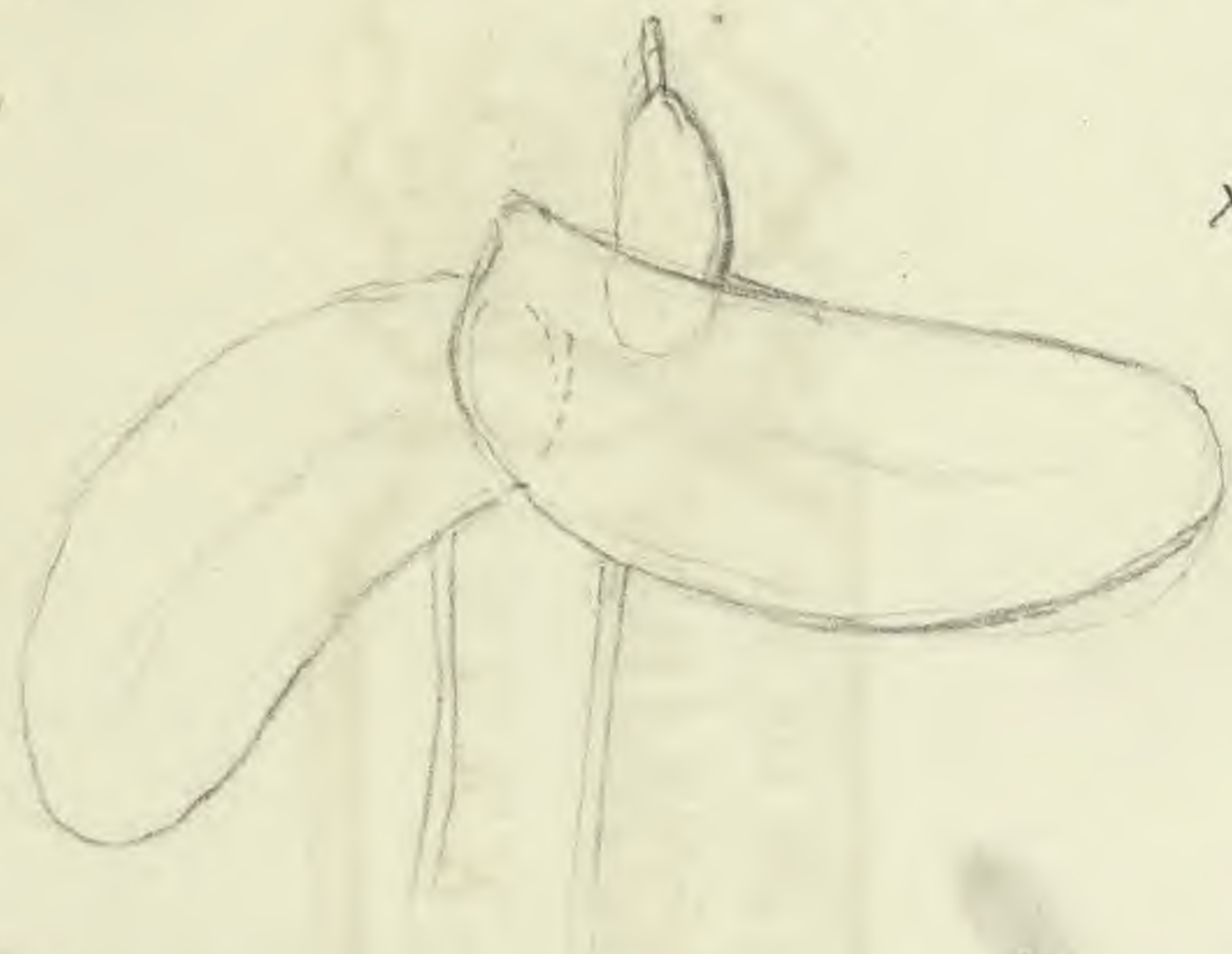


*Lemna Torreyi* Aust

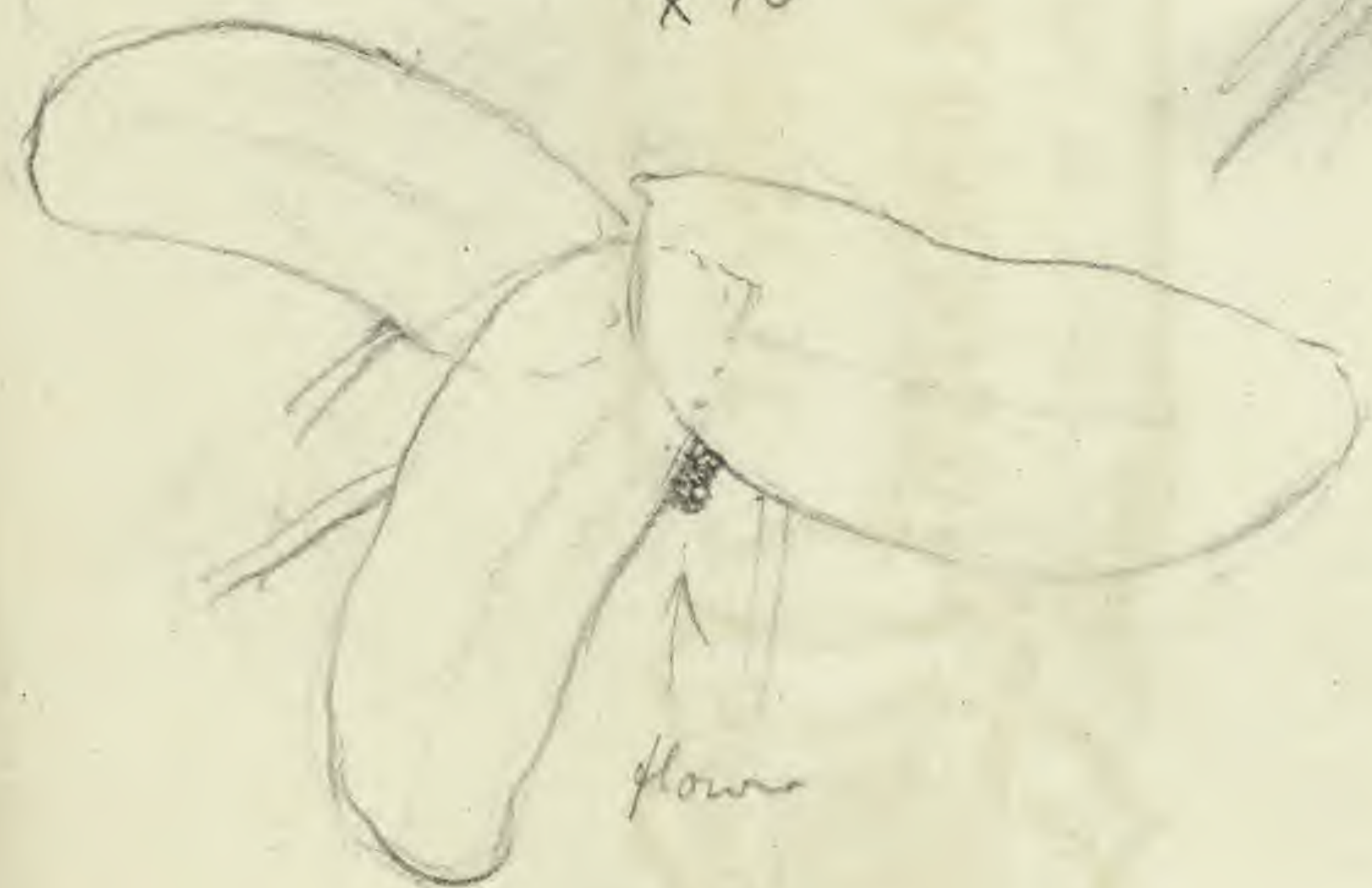
July 12 1867

New Jersey, Austin

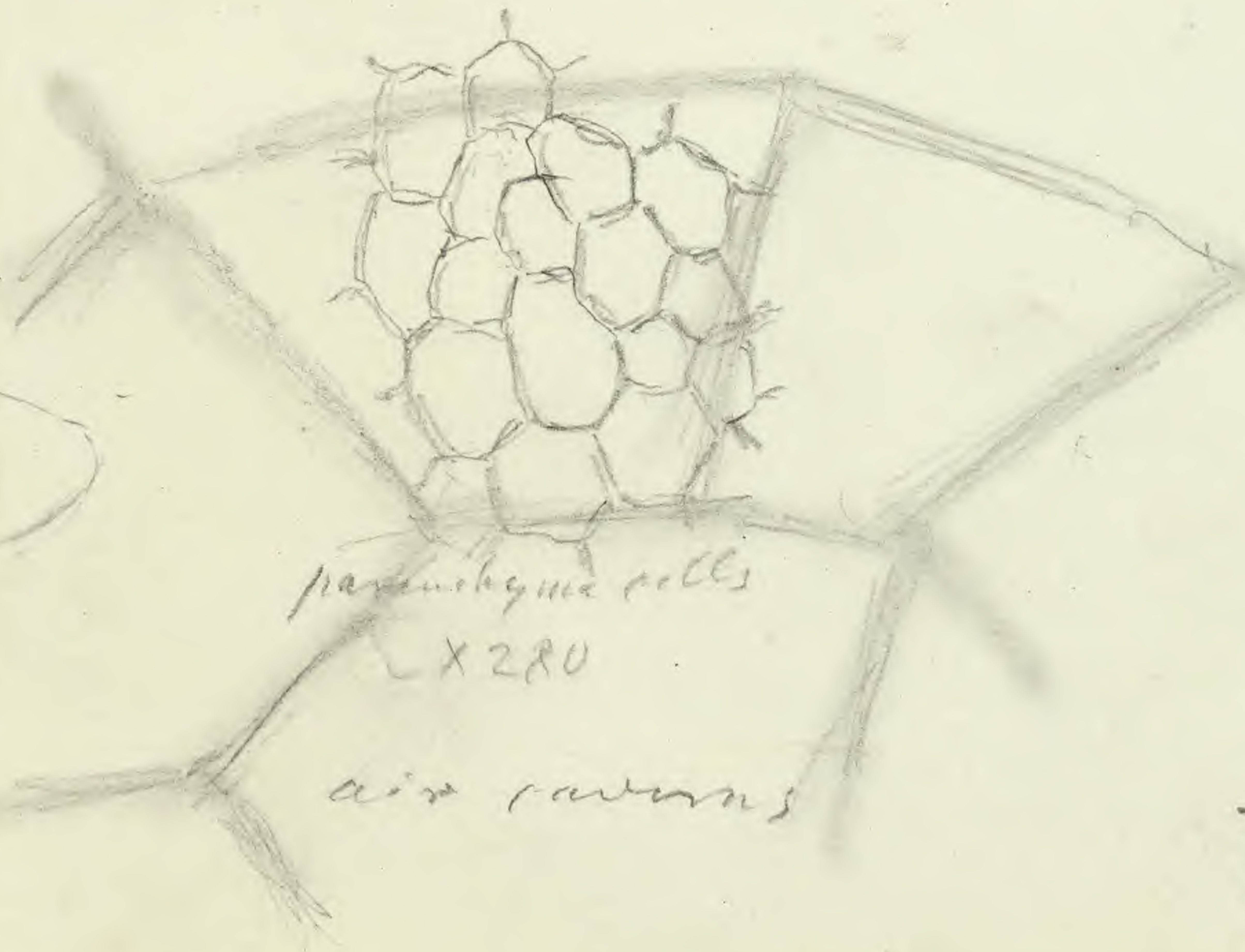
X 10



X 10



flower



parenchyma cells

X 280

air cavities



young fruit x 60  
translucent by  
Potash -



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cm

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cm

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1887

*Lamnia Torreyi*  
 (Costus, Austin)

Oct 22 1869

stomata very few  
 and small, seen only in indistinct  
 ? Is it not a diatom?

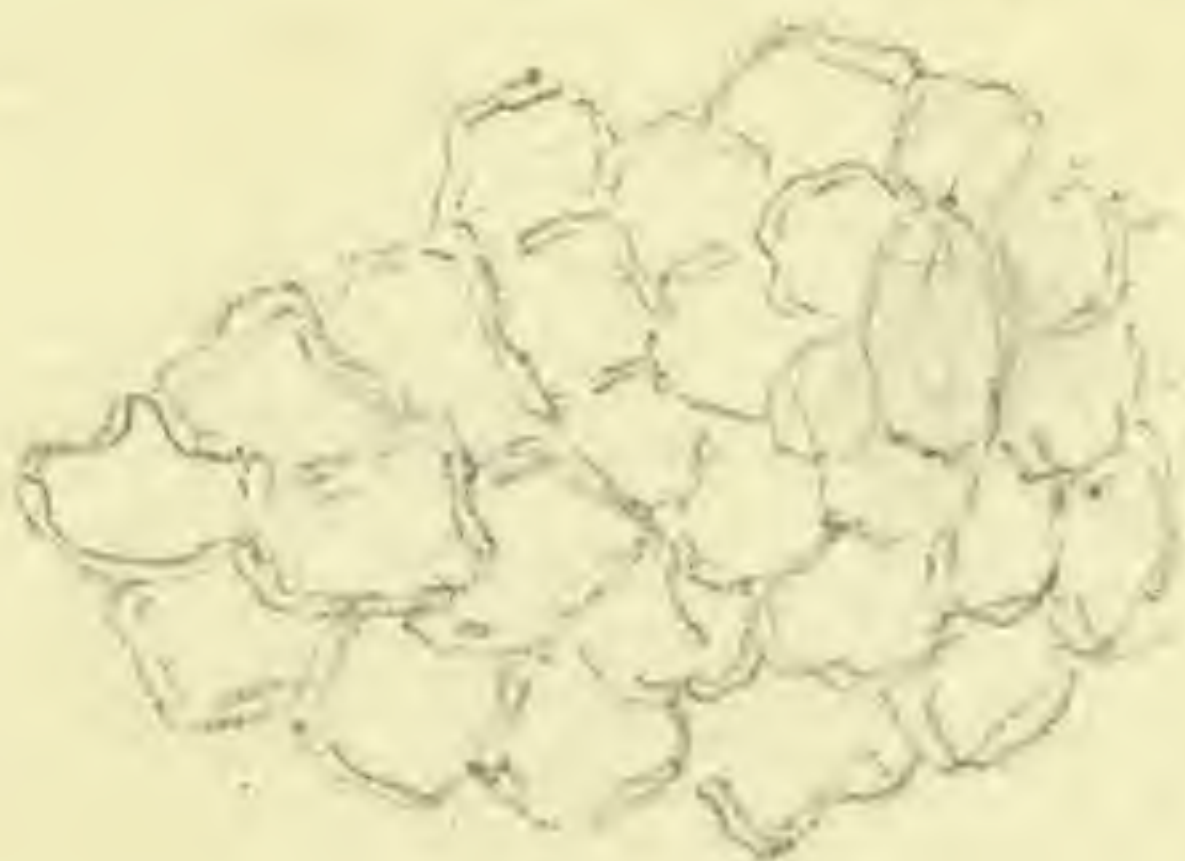
air moister

paracymbriae cells

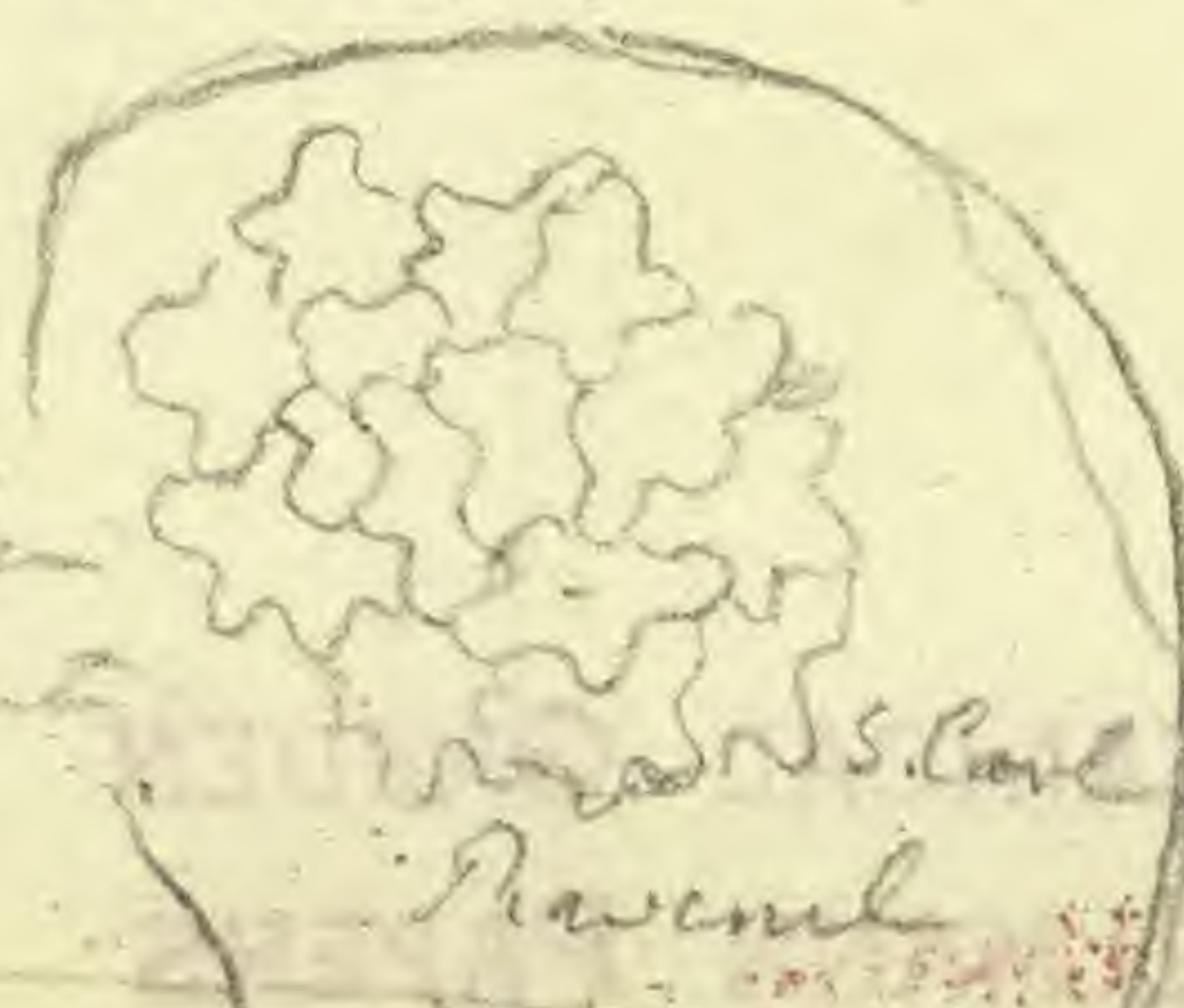
x 280



cornu



upper epiderm  
 no stomata



epiderm; of lower  
 surface



later and better



S. Carolina,  
 Ravenel

lower epiderm



0 1 2 3 4 5 6 7 8 9 10

cm

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0 1 2 3 4 5 6 7 8 9 10

cm

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X10

*L. Torreyi*

Nov 9 1867

H. J. Torrey

C. F. Austin Nov. 1867

examined living

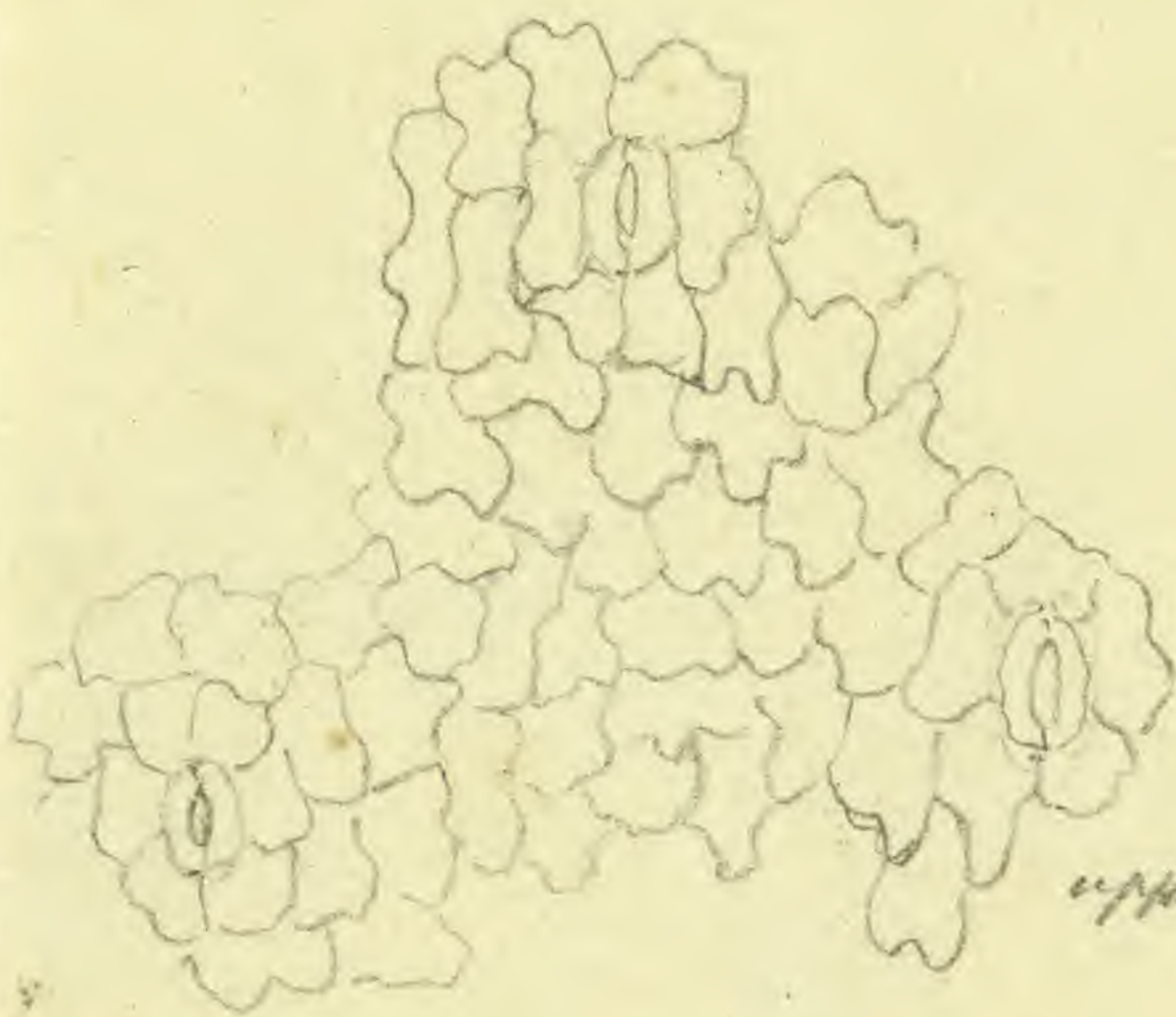


X280

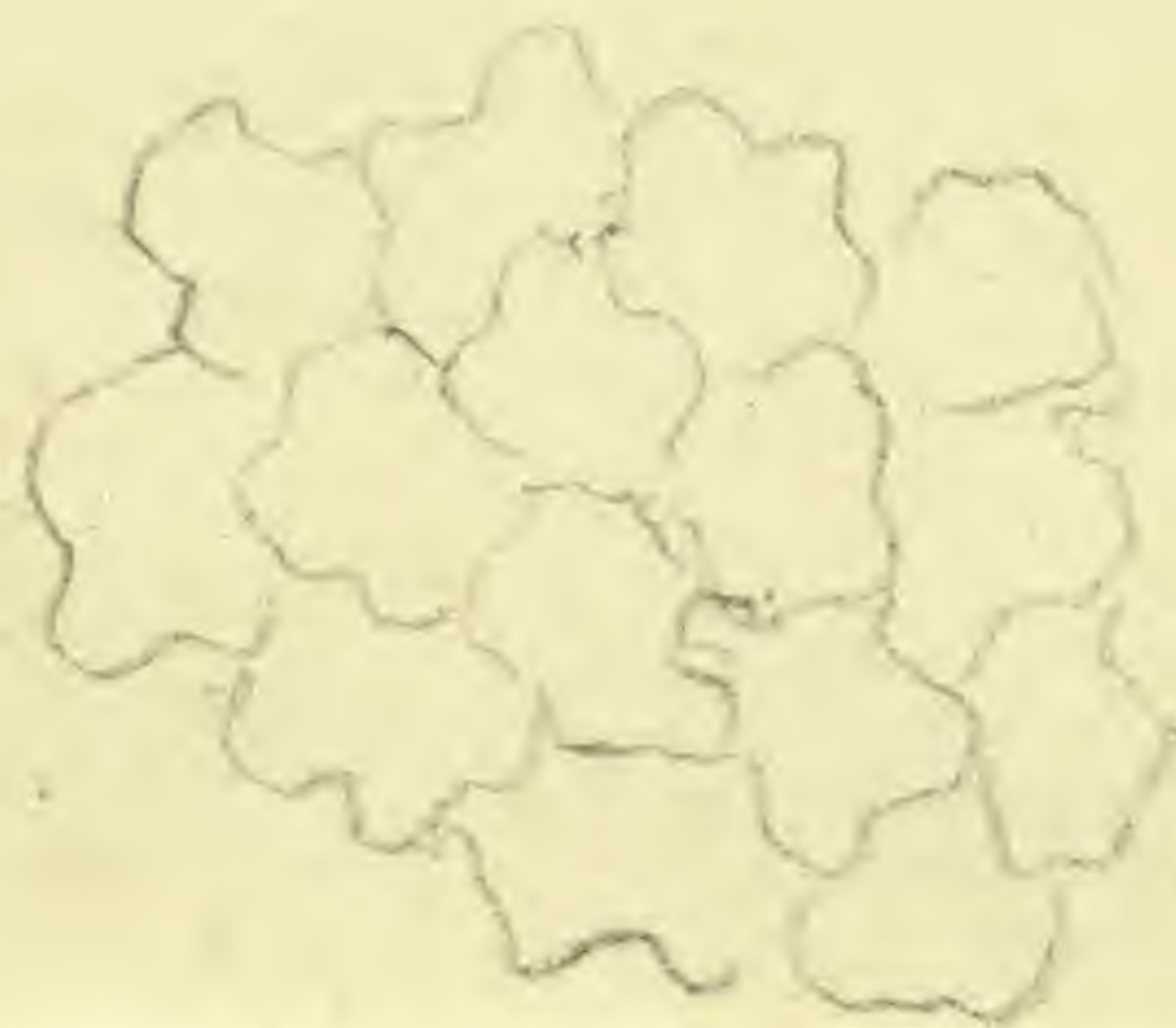
MISSOURI BOTANICAL GARDEN

CHLOROPHYLL PARACHLOROPHYLL

with large  
chlorophyll  
granules



upper surface



lower  
surface



0 1 2 3 4 5 6 7 8 9 10

cm

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0 1 2 3 4 5 6 7 8 9 10

cm

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gæ or pittings, which, however, may be due to weathering.  
Length, 0.20 of an inch; width, 0.18.  
*Elæacrinus Kirkwoodensis* is nearly allied to *E. emites* *melo*, from which it is distinguished by its much smaller size and less deeply excavated base. It also occupies a higher geological position.

Occurs in the St. Louis Limestone (Carboniferous) on the Pacific railroad near Kirkwood, St. Louis county, Missouri.

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27-9

*gibba*



0 1 2 3 4 5 6 7 8 9 10

cm

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GARDEN





0 1 2 3 4 5 6 7 8 9 10

cm

7823

circumstances prevented me from obtaining more than a few crystals, which are now deposited in the collection of the Smithsonian Institute; a few others are also in the hands of members of the party. We were travelling at the time by forced night marches with nearly worn out animals, seeking to gain a spring of water in a distant range of mountains. This desert was then entirely unexplored. I have but little doubt that more interesting materials are to be found at the same point.

The mountains of the former Territory of Utah promise a rich yield to the mineralogist. We know already of gold and silver ores in the east, west and south part of that district; of copper and lead ores in the south, and I have discovered the latter also in the centre of it; of specular iron ores and native sulphur in the Rocky Mountains and near Little Salt Lake; of rock salt in the mountains south-east of Utah Lake; of native alum near Salt Lake; of various other salts in the deserts; and of silicates, composing the granites, porphyries, diorites, trachytes, and lavas, nearly over the whole area.



Dimensions. — Length, c. 0 of an inch; width, 0.18.

The *Elaeocrinus Kirkwoodensis* is nearly allied to *E. (Pentremites) melo*, from which it is distinguished by its much smaller size and less deeply excavated base. It also occupies a higher geological position.

Occurs in the St. Louis Limestone (Carboniferous) on the Pacific railroad near Kirkwood, St. Louis county, Missouri.

*Temna*

27-30



0 1 2 3 4 5 6 7 8 9 10

cm

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GARDEN



7824

sonian Institute; a few others are also in the hands of members of the party. We were travelling at the time by forced night marches with nearly worn out animals, seeking to gain a spring of water in a distant range of mountains. This desert was then entirely unexplored. I have but little doubt that more interesting materials are to be found at the same point.

The mountains of the former Territory of Utah promise a rich yield to the mineralogist. We know already of gold and silver ores in the east, west and south part of that district; of copper and lead ores in the south, and I have discovered the latter also in the centre of it; of specular iron ores and native sulphur in the Rocky Mountains and near Little Salt Lake; of rock salt in the mountains south-east of Utah Lake; of native alum near Salt Lake; of various other salts in the deserts; and of silicates, composing the granites, porphyries, diorites, trachytes, and lavas, nearly over the whole area.



0 1 2 3 4 5 6 7 8 9 10

cm

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*Lemna gibba*

Flor. Heidelberg Aug. 1827

July 9

1867



seeds two or  
usually 3



12 blunt  
ridges  
seed and rapese  
- shape

inside of one of 3 seeds -

at 24: 1867  
indistinct irregular non wrinkly, in  
the grooves, ridges <sup>12-14</sup> very obtuse  
somewhat spongy ridges on outside



0  
cm

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cm

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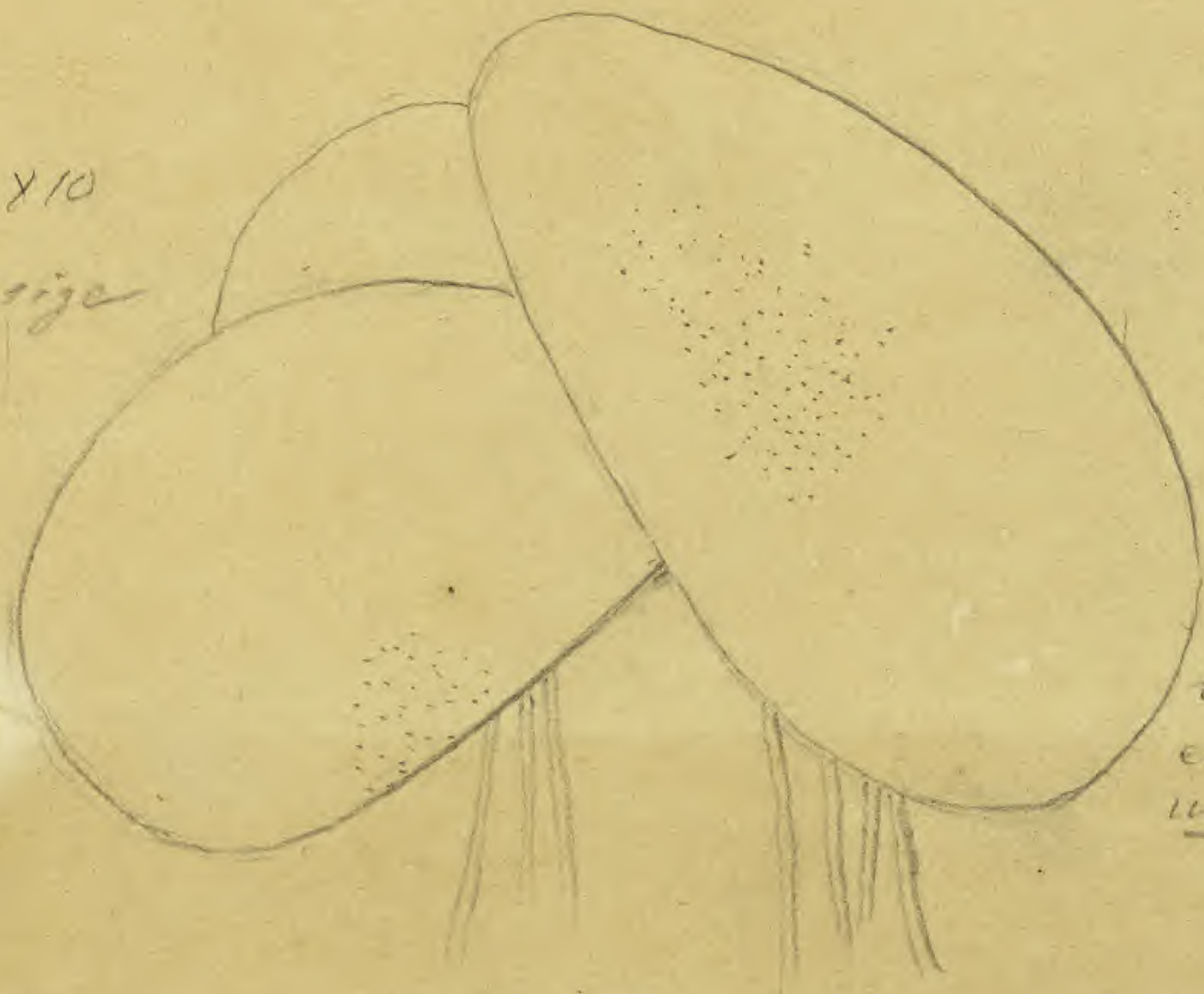


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656 *Lemna melanorrhiza* Mull & Kunz Oct 18 1867  
 Seem. Journ Bot April 1867 p. 115  
 Fiji Islands, Dr Seemann 1860

x10  
 usual size



epidermis cells very small, angular  
 upper surface



1, 2 or 3  
 brown cells at  
 each stoma  
 under the epidermis

x280

parenchyma

smallest  
 specimen  
 seen

x10



epidermis of  
 under side  
 large, sinuous



0  
 cm

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 GARDEN



M. W. ALEXANDER,

*South-east corner Fourth and Market Streets,*

ST. LOUIS.

7826

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0

1

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cm

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*L. gibba*

Heidelberg 1827

Oct 24 1867

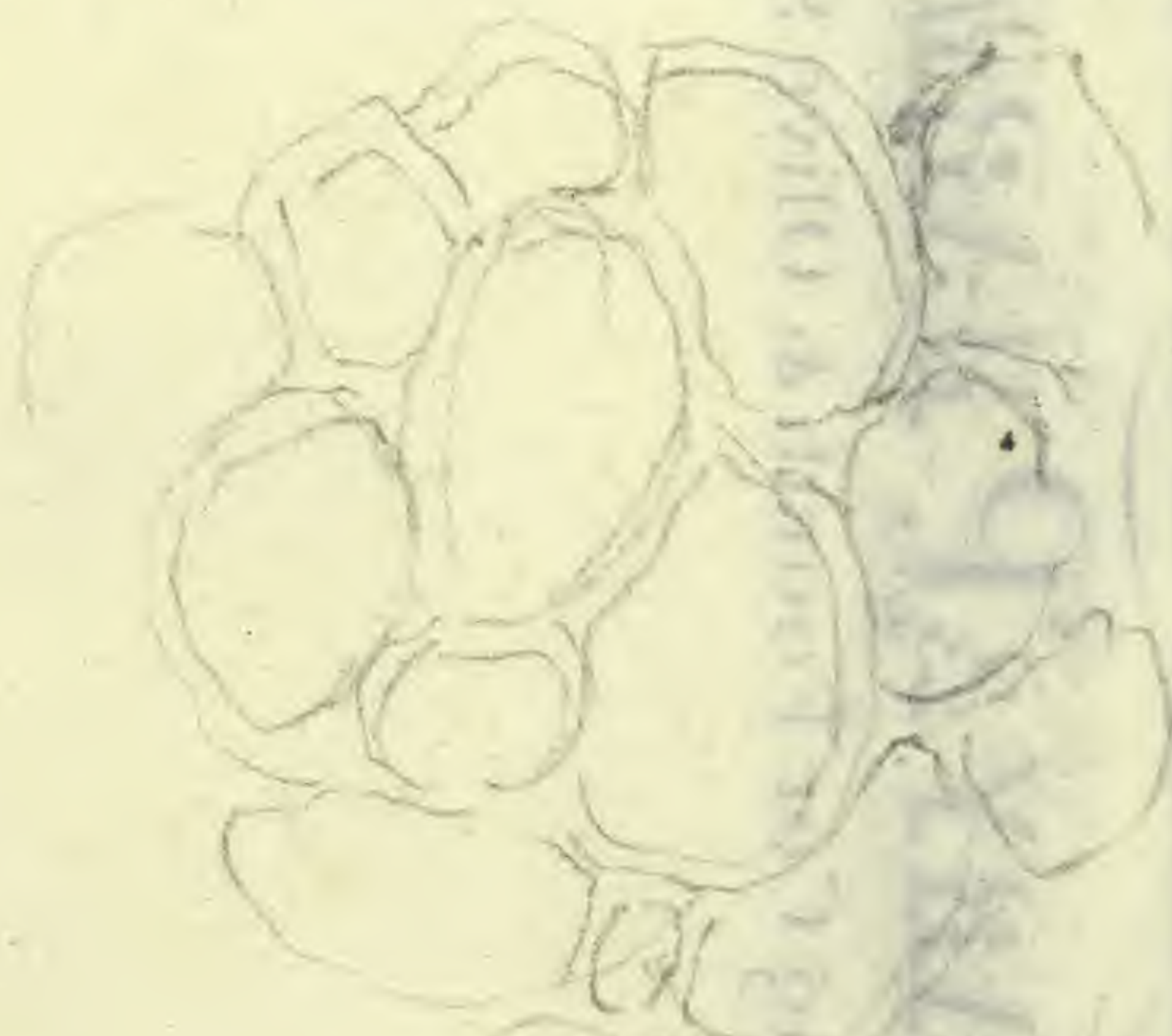
X 280

MISSOURI BOTANICAL GARDEN  
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epidermis of  
upper

of lower surface



narrowed  
cells



0 1 2 3 4 5 6 7 8 9 10

cm

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0 1 2 3 4 5 6 7 8 9 10

cm

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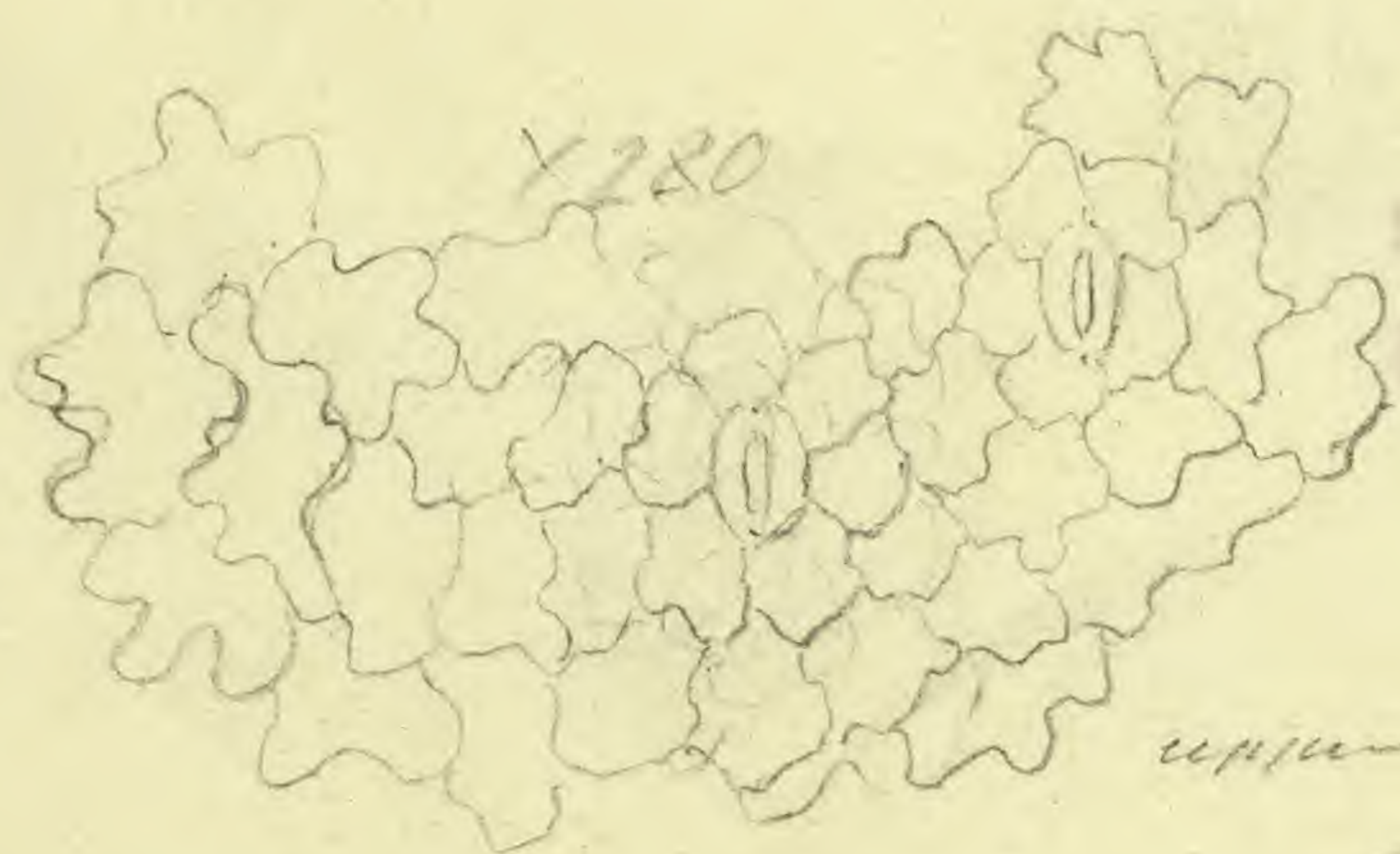


8287

*L. gibba*  
major

Oct 24 1867

Arizona, Cones

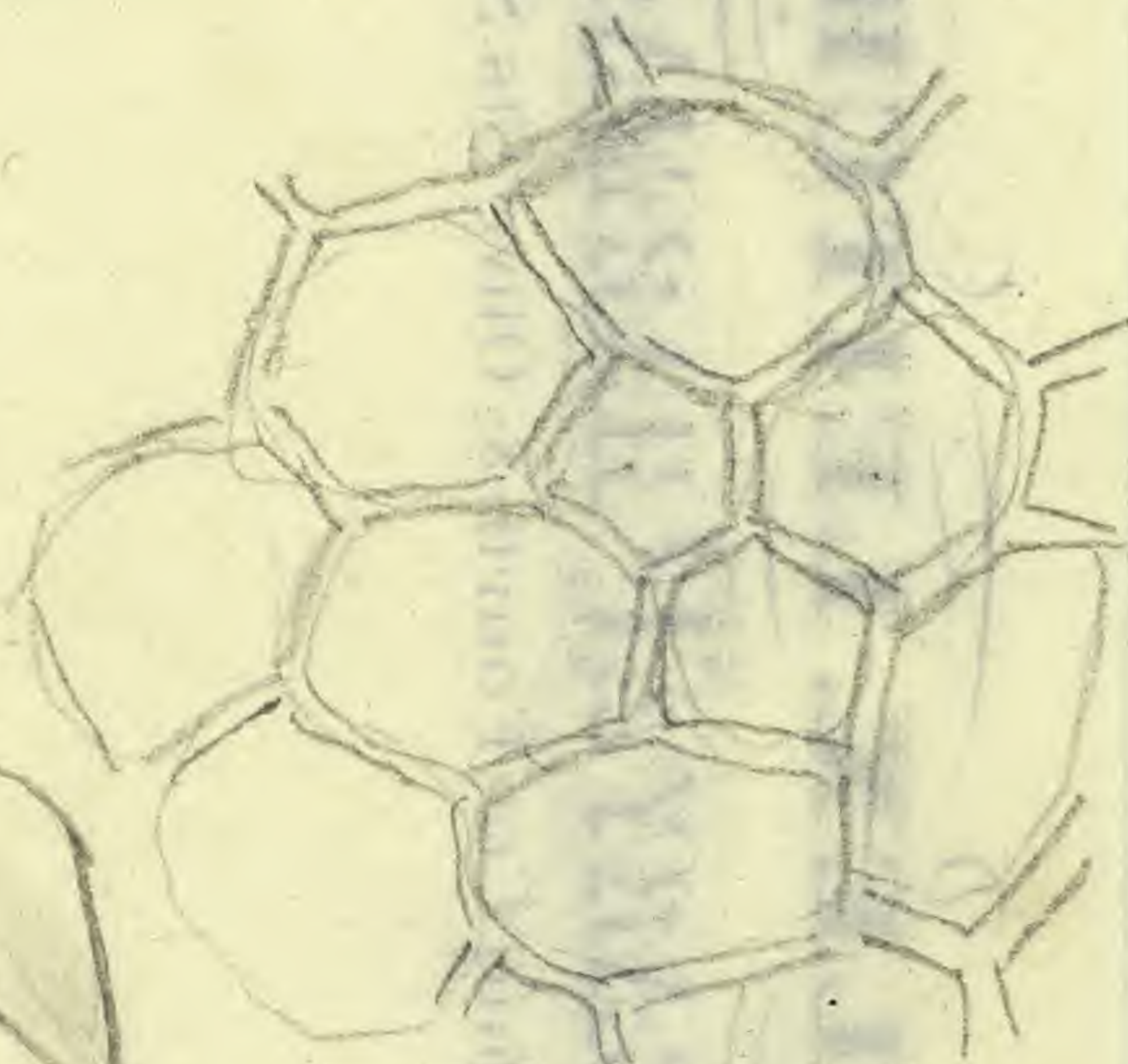
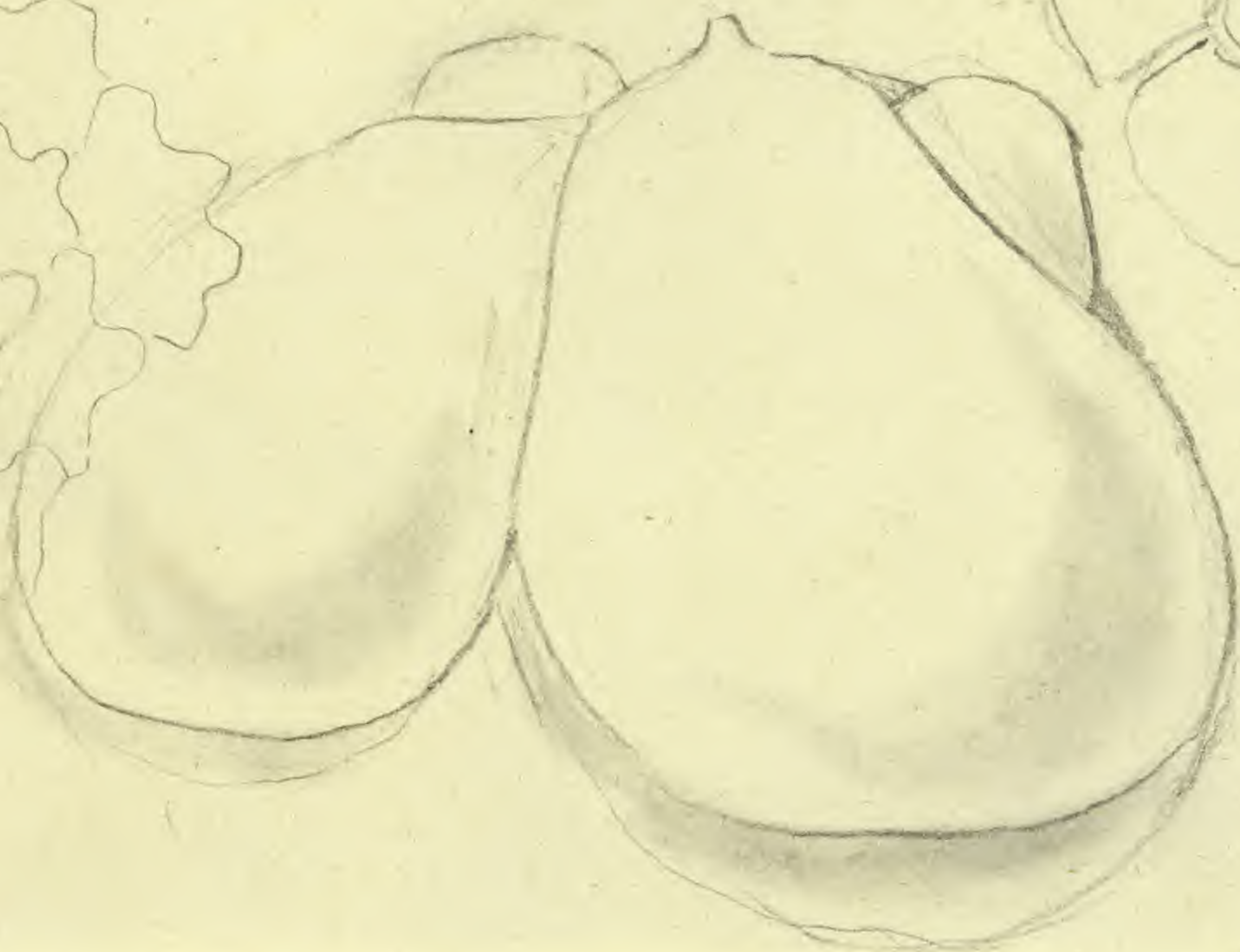


X280

upper

surface

lower



Parenchyma

X10



0 1 2 3 4 5 6 7 8 9 10

cm

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0 1 2 3 4 5 6 7 8 9 10

cm

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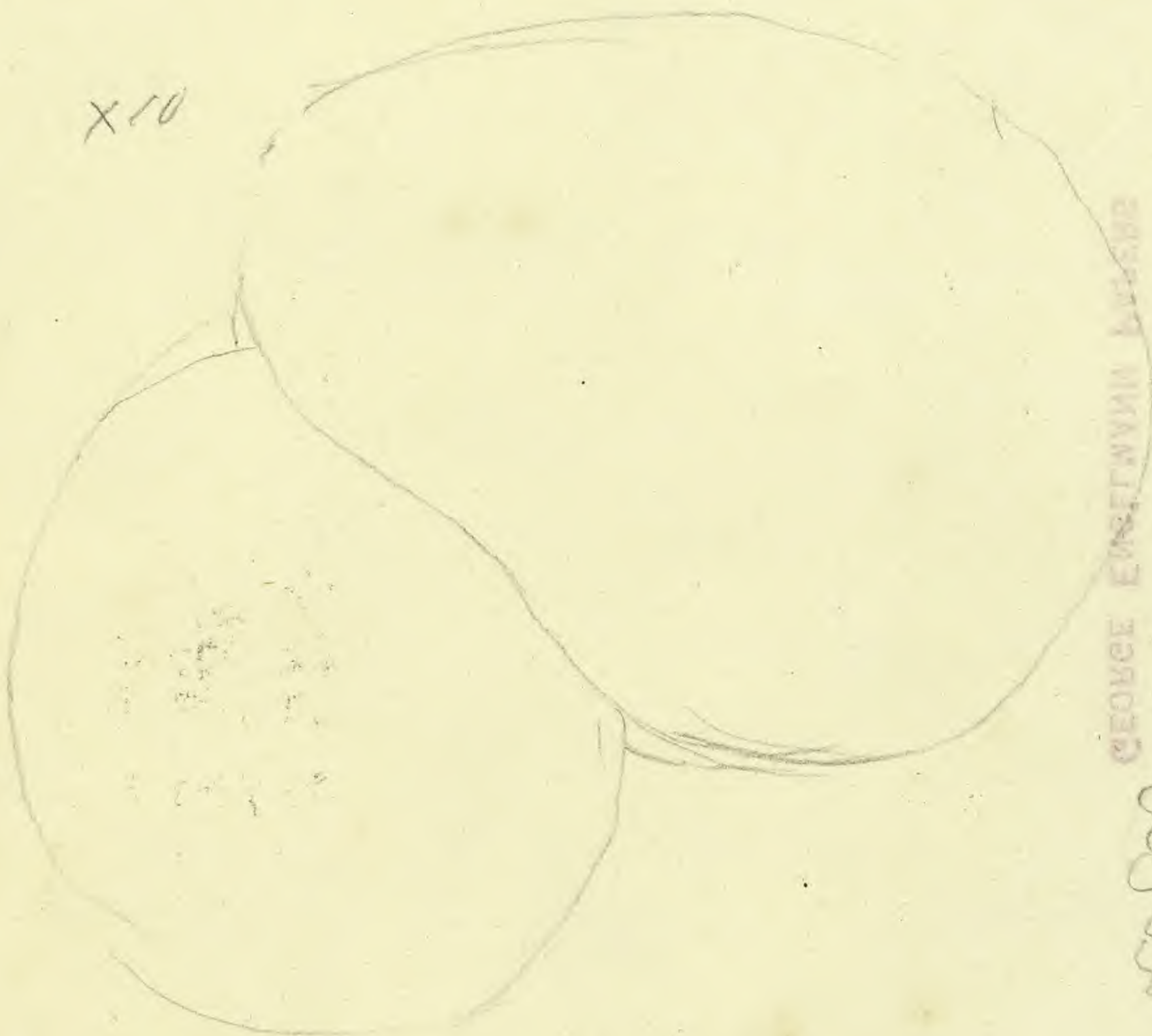


*Lemna gibba*, *maxima*

Oct 30 1867

N. 214 Holton, New Granada

x 10



7 mm long

x 280



very few  
stamens



0 1 2 3 4 5 6 7 8 9 10

cm

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0 1 2 3 4 5 6 7 8 9 10

cm

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*Lemna gibba*

Nov 1870

Californi

Bohem 1870



1 or 2 ovules  
small vessels in green pulp



young anthers  
ventral side of leaf



0 1 2 3 4 5 6 7 8 9 10

cm

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**CHEMIST**

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**ALL THE NEW REMEDIES**  
**CONSTANTLY ON HAND**

MISSOURI BOTANICAL GARDEN  
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cm

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FLORA OF MISSOURI.

---

F. W. DEWART.



0 1 2 3 4 5 6 7 8 9 10

cm

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F. W. DEWART



0 1 2 3 4 5 6 7 8 9 10

cm

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FLORA OF MISSOURI.

---

F. W. DEWART.



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F. W. DEWART



0 1 2 3 4 5 6 7 8 9 10

cm

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